KAPREALIAN ENGINEERING
INCORPORATED

ST. ID
3693

April 2, 1993

Alameda County Health Care Services
80 Swan Way, Room 200
Oakland, CA 94621

Attention: Ms. Cynthia Chapman

RE: Unocal Service Station #3135
845 - 66th Avenue
Oakland, California

Dear Ms. Chapman:

Per the request of Mr. Tim Howard of Unocal Corporation, enclosed please find our report dated February 25, 1993, for the above referenced site.

If you should have any questions, please feel free to call our office at (510) 602-5100.

Sincerely,

Kaprealian Engineering, Inc.

Judy A. Dewey

jad\82

Enclosure

cc: Tim Howard, Unocal Corporation

2401 Stanwell Drive, Suite 400
Concord, California 94520
Tel: 510.602.5100 Fax: 510.687.0602

KAPREALIAN ENGINEERING
INCORPORATED

KEI-P88-1203.QR8
February 25, 1993

Unocal Corporation
2000 Crow Canyon Place, Suite 400
P.O. Box 5155
San Ramon, California 94583

Attention: Mr. Tim Howard

RE: Quarterly Report
Unocal Service Station #3135
845 - 66th Avenue
Oakland, California

Dear Mr. Howard:

This report presents the results of the most recent quarter of monitoring and sampling of the monitoring wells at the referenced site by Kaprealian Engineering, Inc. (KEI), per KEI's proposal (KEI-P88-1203.P4) dated April 22, 1991. The wells are currently monitored monthly and sampled on a quarterly basis. This report covers the work performed by KEI from December of 1992 through February of 1993.

BACKGROUND

The subject site contains a Unocal service station facility. Two underground fuel storage tanks, one waste oil tank, and the product piping were removed from the site in November and December of 1989 during tank replacement activities. During March and April of 1991, approximately 2,000 cubic yards of contaminated soil were excavated from the area in the vicinity of the former (pre-1967) fuel tank pit. The soil excavation was conducted to a depth of approximately 1 foot below ground water (11 feet below grade). Nine monitoring wells, two exploratory borings, and a Hydropunch study (seven probe locations) have been installed/performed at and in the vicinity of the site.

A site description, detailed background information including a summary of all of the soil and ground water subsurface investigation/remediation work conducted to date, site hydrogeologic conditions, and tables that summarize all of the soil and ground water sample analytical results are presented in KEI's quarterly report (KEI-P88-1203.R13) dated December 10, 1992.

RECENT FIELD ACTIVITIES

The nine monitoring wells (MW1 through MW6 and MW8 through MW10) were monitored three times and were sampled once during the

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Concord, California 94520
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quarter. During monitoring, the wells were checked for depth to water and the presence of free product. Prior to sampling, the wells were also checked for the presence of a sheen. No free product or sheen was noted in any of the wells during the quarter. The monitoring data collected this quarter are summarized in Table 1.

Water samples were collected from all of the wells on February 3, 1993. Prior to sampling, the wells were each purged of between 11 and 14 gallons of water by the use of a surface pump. The samples were collected by the use of a clean Teflon bailer. The samples were decanted into clean VOA vials and/or one-liter amber bottles, as appropriate, which were then sealed with Teflon-lined screw caps and stored in a cooler, on ice, until delivery to a state-certified laboratory.

HYDROLOGY

The measured depth to ground water at the site on February 3, 1993, ranged between 5.08 and 7.67 feet below grade. The water levels in all of the wells have shown net increases ranging from 3.59 to 4.58 feet since November 3, 1992. Based on the water level data gathered during the quarter, the ground water flow direction appeared to be complex. During all three monthly monitoring events, the ground water flow direction varied from the west-southwest at the eastern part of the site and vicinity, to the southeast at the southern part of the site and vicinity, and to the north-northwest at the northern part of the site, as shown on the attached Potentiometric Surface Maps, Figures 1, 2, and 3. The hydraulic gradient at the site on February 3, 1993, varied from approximately 0.01 to 0.004.

ANALYTICAL RESULTS

The ground water samples were analyzed at Sequoia Analytical Laboratory and were accompanied by properly executed Chain of Custody documentation. The samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline by EPA method 5030/modified 8015, TPH as diesel by EPA method 3510/modified 8015, and benzene, toluene, xylenes, and ethylbenzene by EPA method 8020. In addition, the ground water samples collected from monitoring wells MW2 and MW6 were analyzed for total oil and grease (TOG) by Standard Methods 5520B&F.

The ground water sample analytical results are summarized in Table 2. The concentrations of TPH as gasoline, benzene, and TPH as diesel detected in the ground water samples collected this quarter are shown on the attached Figure 4. Copies of the laboratory

analytical results and the Chain of Custody documentation are attached to this report.

DISCUSSION AND RECOMMENDATIONS

Based on the analytical results for the ground water samples collected and evaluated to date, and based on no evidence of free product in any of the wells, KEI recommends the continuation of the current ground water monitoring and sampling program, per KEI's proposal (KEI-P88-2304.P4) dated April 22, 1991. However, due to the fact that TOG concentrations in the ground water samples collected from wells MW2 and MW6 have consistently been non-detectable for the previous five quarters, KEI recommends discontinuing the TOG analyses for future samples collected from these two wells.

KEI previously recommended the installation of an additional on-site monitoring well (designated as MW7 on the attached Figure 1). KEI attempted to install the proposed well on September 28, 1992, but encountered difficulties with the service station dealer; therefore, the well was not installed at that time. KEI understands that Unocal is negotiating with the service station dealer in order to allow the well to be installed. KEI will install this well once an agreement with the dealer is obtained.

Lastly, as shown on the attached laboratory analysis sheet, Sequoia Analytical Laboratory reported that the ground water sample collected from well MW10 on February 3, 1993, "does not appear to contain gasoline. Purgeable hydrocarbons are due to an unidentified peak in the methyl tert butyl ether (MTBE) range." The laboratory also reported that the hydrocarbons detected in well MW1 "are partially due to an unidentified peak in the MTBE range." Based on the above results, KEI recommends that future ground water samples collected from wells MW1 and MW10 also be analyzed for MTBE.

DISTRIBUTION

A copy of this report should be sent to Ms. Cynthia Chapman of the Alameda County Health Care Services Agency, and to the Regional Water Quality Control Board, San Francisco Bay Region.

LIMITATIONS

Environmental changes, either naturally-occurring or artificially-induced, may cause changes in ground water levels and flow paths, thereby changing the extent and concentration of any contaminants.

Our studies assume that the field and laboratory data are reasonably representative of the site as a whole, and assume that subsurface conditions are reasonably conducive to interpolation and extrapolation.

The results of this study are based on the data obtained from the field and laboratory analyses obtained from a state-certified laboratory. We have analyzed these data using what we believe to be currently applicable engineering techniques and principles in the Northern California region. We make no warranty, either expressed or implied, regarding the above, including laboratory analyses, except that our services have been performed in accordance with generally accepted professional principles and practices existing for such work.

If you have any questions regarding this report, please do not hesitate to call at (510) 602-5100.

Sincerely,

Kaprealian Engineering, Inc.

Thomas J. Berkins
Senior Environmental Engineer

Joel G. Greger, C.E.G.
Senior Engineering Geologist

License No. 1633
Exp. Date 6/30/94

Robert H. Kezerian
Project Engineer

/bp

Attachments: Tables 1 & 2
Location Map
Potentiometric Surface Maps - Figures 1, 2 & 3
Concentrations of Petroleum Hydrocarbons - Figure 4
Laboratory Analyses
Chain of Custody documentation

KEI-P88-1203.QR8
February 25, 1993

TABLE 1

SUMMARY OF MONITORING DATA

Well No.	Ground Water Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Sheen	Water Purged (gallons)
(Monitored and Sampled on February 3, 1993)					
MW1	-2.15	7.33	0	No	11
MW2	-2.13	5.96	0	No	12
MW3	-1.78	5.08	0	No	12
MW4	-2.40	7.67	0	No	12
MW5	-2.10	6.71	0	No	14
MW6	-1.94	6.25	0	No	14
MW8	-1.62	6.74	0	No	12
MW9	-1.50	6.34	0	No	12
MW10	-2.54	5.88	0	No	13
(Monitored on January 5, 1993)					
MW1	-3.40	8.58	0	--	0
MW2	-3.23	7.06	0	--	0
MW3	-2.48	5.78	0	--	0
MW4	-3.77	9.04	0	--	0
MW5	-3.24	7.85	0	--	0
MW6	-2.97	7.28	0	--	0
MW8	-2.42	7.54	0	--	0
MW9	-2.28	7.12	0	--	0
MW10	-3.33	6.67	0	--	0
(Monitored on December 8, 1992)					
MW1	-5.96	11.14	0	--	0
MW2	-5.92	9.75	0	--	0
MW3	-5.34	8.64	0	--	0
MW4	-6.20	11.47	0	--	0
MW5	-5.91	10.52	0	--	0
MW6	-5.76	10.07	0	--	0
MW8	-5.16	10.28	0	--	0
MW9	-5.06	9.90	0	--	0
MW10	-5.94	9.28	0	--	0

TABLE 1 (Continued)

SUMMARY OF MONITORING DATA

Well #	Surface Elevation* (feet)
MW1	5.18
MW2	3.83
MW3	3.30
MW4	5.27
MW5	4.61
MW6	4.31
MW8	5.12
MW9	4.84
MW10	3.34

-- Sheen determination was not performed.

* The elevations of the tops of the well covers have been surveyed relative to Mean Sea Level, per the City of Oakland Benchmark No. 3881 (elevation = 4.72).

KEI-P88-1203.QR8
February 25, 1993

TABLE 2

SUMMARY OF LABORATORY ANALYSES
WATER

Sample Number	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene	TOG
(Collected on February 3, 1993)							
MW1	ND	94**	ND	ND	1.6	1.4	--
MW2	3,900♦	9,300	780	68	1,200	830	ND
MW3	ND	ND	ND	ND	ND	ND	--
MW4	720♦♦	370	2.6	ND	53	1.2	--
MW5	ND	ND	ND	ND	ND	ND	--
MW6	ND	ND	1.2	ND	ND	ND	ND
MW8	ND	ND	ND	ND	ND	ND	--
MW9	ND	ND	ND	ND	ND	ND	--
MW10	ND	1,200*	ND	ND	ND	ND	--
(Collected on November 3, 1992)							
MW1	400♦	1,100	28	ND	78	80	--
MW2	9,600♦	40,000	5,600	130	6,100	3,000	ND
MW3	52♦	ND	ND	ND	ND	ND	--
MW4	8,300♦	36,000	69	ND	7,400	3,000	--
MW5	ND	ND	ND	ND	ND	ND	--
MW6	220♦	920	45	0.76	110	12	ND
MW8	ND	ND	ND	ND	ND	ND	--
MW9	ND	ND	ND	ND	ND	ND	--
MW10	160♦	740	11	2.1	56	32	--
(Collected on August 3, 1992)							
MW1	220♦	980	22	0.69	82	77	--
MW2	3,300♦♦	37,000	4,500	480	9,700	3,300	ND
MW3	58	ND	ND	ND	ND	ND	--
MW4	2,400♦	24,000	61	ND	5,400	2,100	--
MW5	ND	ND	ND	ND	ND	ND	--
MW6	170♦	1,100	180	1.1	78	62	ND
(Collected on May 5, 1992)							
MW1	120	310	5.7	ND	15	7.1	--
MW2	4,600	26,000	2,300	110	6,900	2,700	ND
MW3	56	ND	ND	ND	1.8	0.43	--
MW4	3,200	15,000	82	12	5,600	2,000	--
MW5	72	ND	ND	ND	1.4	0.42	--
MW6	47	ND	ND	ND	1.3	ND	ND

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February 25, 1993

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

Sample Number	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene	TOG
(Collected on February 7, 1992)							
MW1	ND	220	2.1	ND	16	10	--
MW2	2,300	11,000	1,400	30	1,400	1,900	ND
MW3	ND	ND	ND	ND	ND	ND	--
MW4	2,300	8,100	24	4.9	3,200	1,800	--
MW5	ND	ND	ND	ND	0.94	0.36	--
MW6	ND	180	22	0.68	20	22	ND
(Collected on November 5, 1991)							
MW1	260	4,900	80	ND	160	150	--
MW2	3,900	110,000	4,200	200	8,600	3,400	78
MW3	ND	31	ND	ND	0.65	ND	--
MW4	7,700	140,000	320	ND	13,000	4,800	--
MW5	ND	ND	ND	ND	ND	ND	--
MW6	300	7,100	200	ND	580	190	ND
(Collected on August 5, 1991)							
MW1	200	1,200	95	6.2	80	230	--
MW2	4,200	33,000	2,900	190	7,900	3,400	ND
MW3	63	ND	ND	ND	ND	ND	--
MW4	6,200	37,000	310	70	9,700	3,600	--
MW5	ND	ND	ND	ND	ND	ND	--
MW6	130	860	130	11	150	92	ND
(Collected on February 21, 1991)							
MW1	690	26,000	280	39	1,900	1,200	--
MW2	7,000	3,400	160	61	490	200	ND
MW3	--	ND	ND	ND	0.64	ND	--
MW4	4,100	33,000	210	21	12,000	3,800	--
MW5	--	56	ND	ND	4.7	ND	--
MW6	160	750	77	14	140	23	ND
MWD (MW6 duplicate)	--	740	74	12	140	33	--

KEI-P88-1203.QR8
February 25, 1993

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

Sample Number	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene	TOG
(Collected on November 26, 1990)							
MW1	--	2,900	160	2.3	320	330	--
MW2	3,800	15,000	1,600	450	2,100	1,100	ND
MW3	--	ND	ND	ND	ND	ND	--
MW4	--	49,000	360	36	11,000	3,800	--
MW5	--	ND	ND	ND	ND	ND	--
MW6	320	4,800	1,000	200	650	340	ND
MW7	--	4,000	800	120	440	250	--
(MW6 duplicate)							
(Collected on August 28, 1990)							
MW1	--	1,700	140	1.4	150	180	--
MW2	3,100	27,000	2,600	1,300	3,000	1,900	ND
MW3	--	ND	ND	ND	0.70	ND	--
MW4	--	62,000	810	72	4,600	4,400	--
MW5	--	ND	ND	ND	1.2	ND	--
MW6	1,000	12,000	1,700	1,400	2,100	230	16
MW7	--	2,600	180	3.0	270	810	--
(MW1 duplicate)							
(Collected on May 11, 1990)							
MW1	--	22,000	590	42	3,600	1,200	--
MW2	--	65,000	3,300	3,300	12,000	4,100	--
MW3	--	ND	ND	ND	ND	ND	--

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

* Sequoia Analytical Laboratory reported that the hydrocarbons detected did not appear to be gasoline.

** Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a gasoline and non-gasoline mixture.

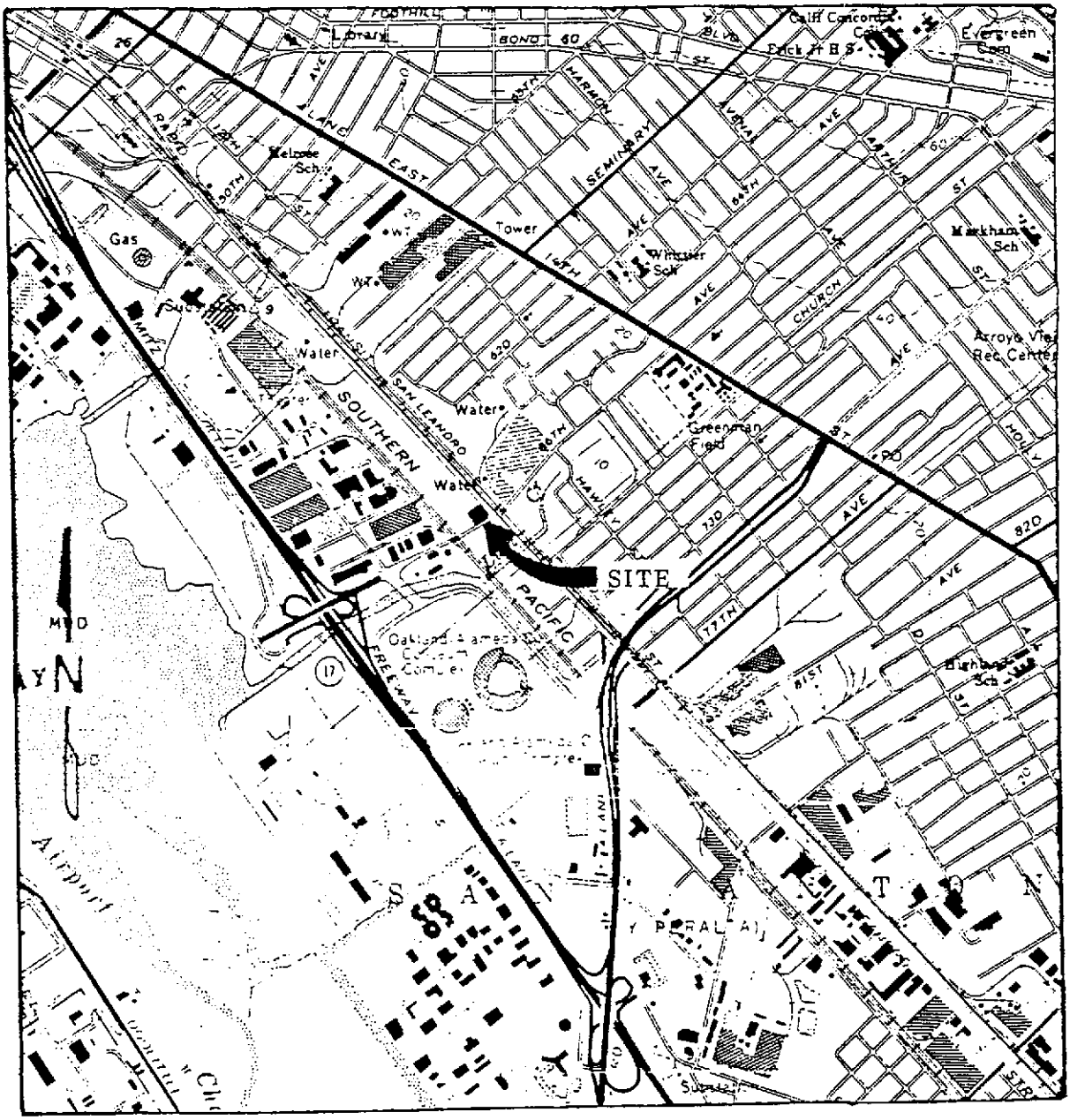
♦ Sequoia Analytical Laboratory reported that the hydrocarbons detected did not appear to be diesel.

♦♦ Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a diesel and non-diesel mixture.

ND = Non-detectable.

-- Indicates analysis was not performed.

Results in parts per billion (ppb), unless otherwise indicated.



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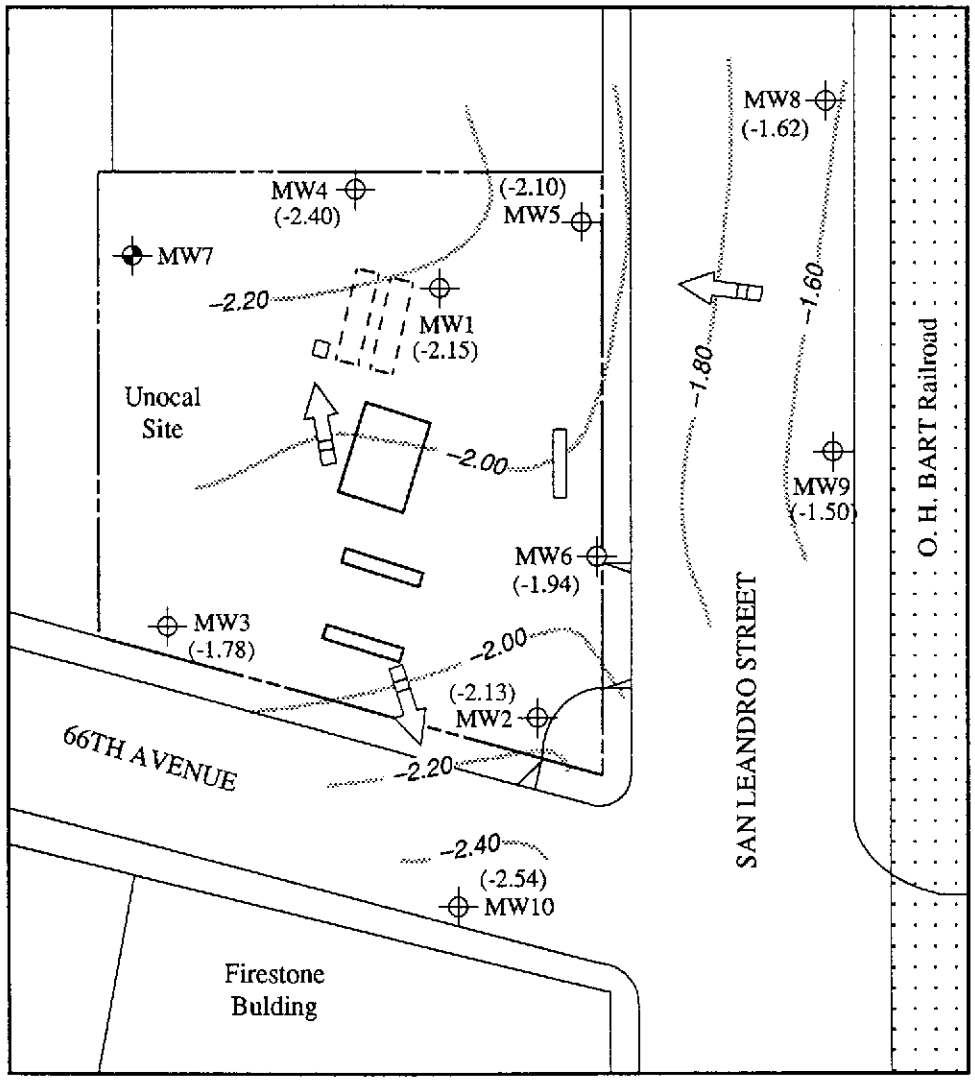
UNOCAL SERVICE STATION #3135
845 - 66TH AVENUE
OAKLAND, CA

LOCATION MAP



LEGEND

- Monitoring well (existing)
- Monitoring well (proposed)
- Direction of ground water flow
- ( ) Ground water elevation in feet relative to Mean Sea Level
- Contours of ground water elevation

0 60 120

Approx. scale feet

POTENTIOMETRIC SURFACE MAP FOR THE FEBRUARY 3, 1993 MONITORING EVENT

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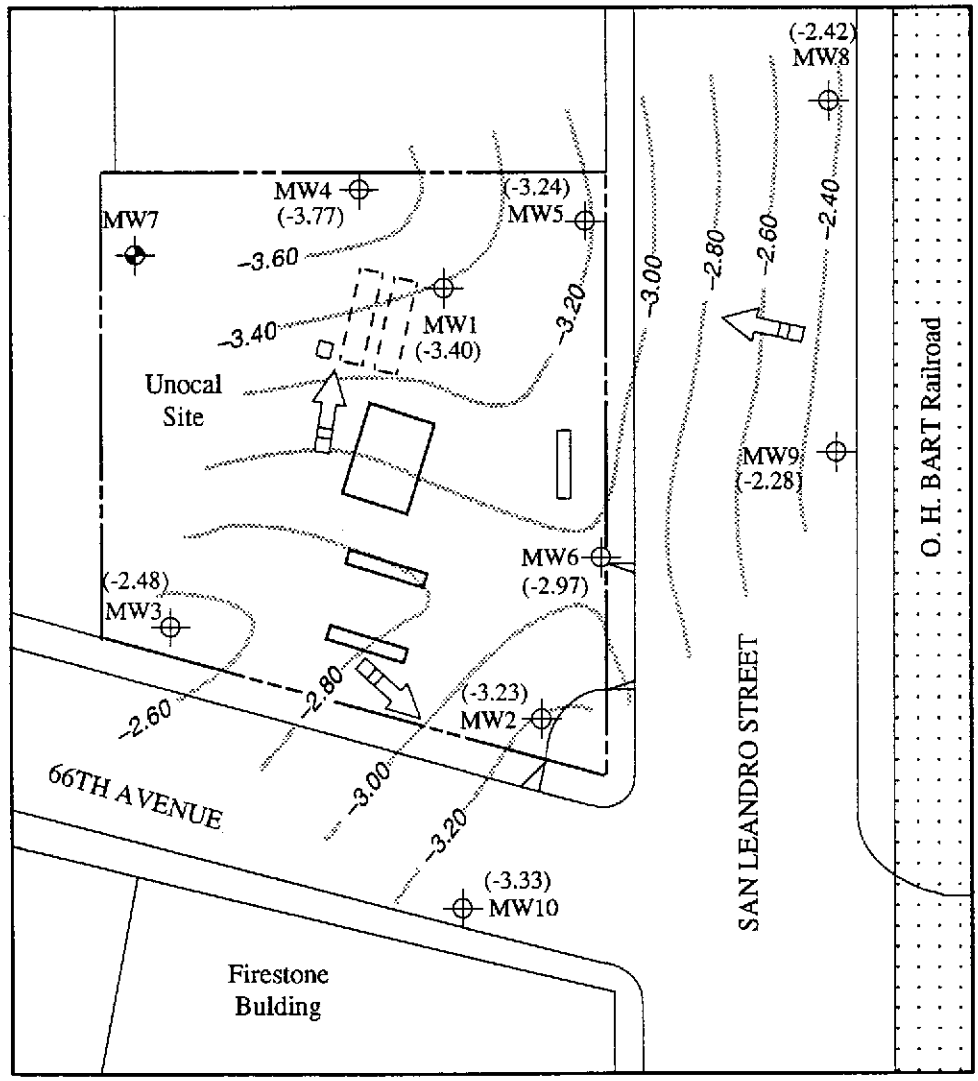
UNOCAL SERVICE STATION #3135
845 - 66TH AVENUE
OAKLAND, CA

FIGURE
1



LEGEND

- Monitoring well (existing)
- Monitoring well (proposed)
- Direction of ground water flow
- ( ) Ground water elevation in feet relative to Mean Sea Level
- Contours of ground water elevation

0 60 120

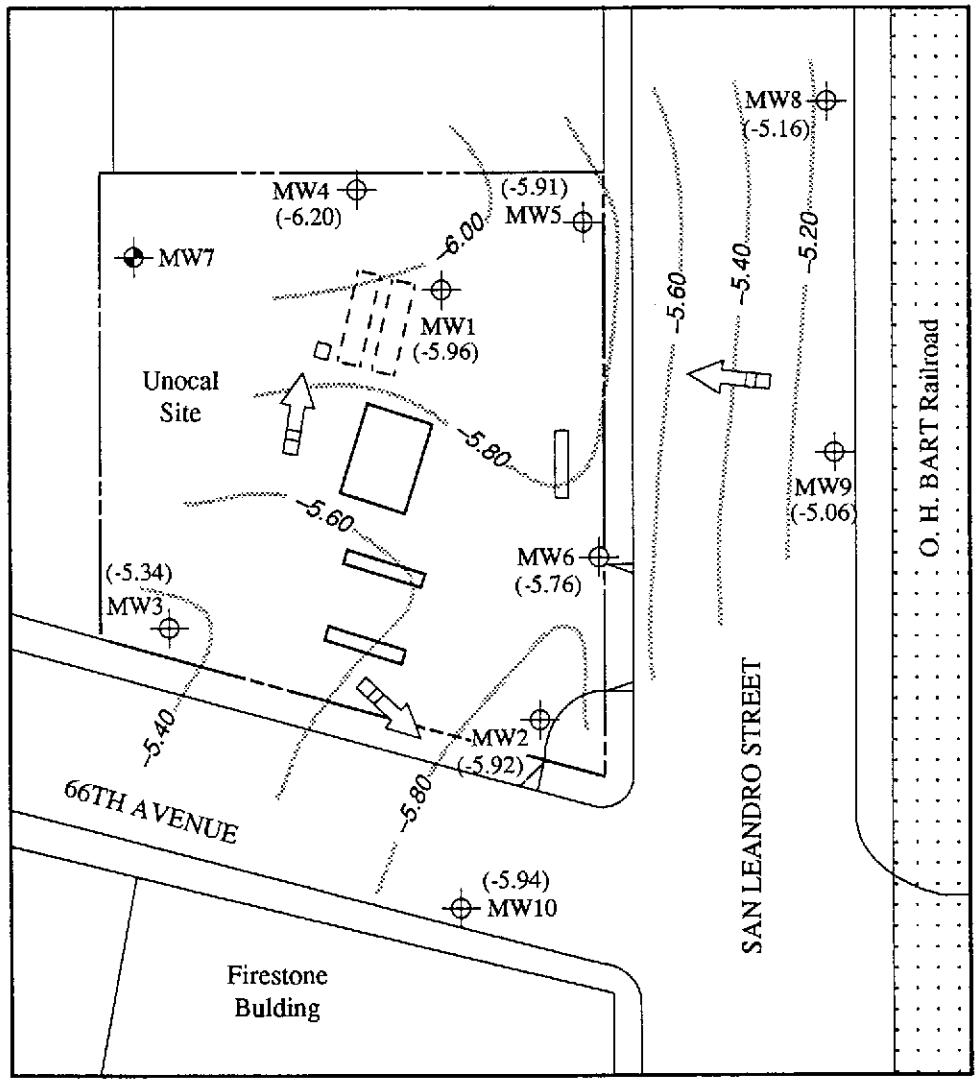
Approx. scale feet

POTENTIOMETRIC SURFACE MAP FOR THE JANUARY 5, 1993 MONITORING EVENT

KAPREALIAN ENGINEERING
INCORPORATED

UNOCAL SERVICE STATION #3135
845 - 66TH AVENUE
OAKLAND, CA

FIGURE
2



LEGEND

- Monitoring well (existing)
- Monitoring well (proposed)
- Direction of ground water flow
- ( ) Ground water elevation in feet relative to Mean Sea Level
- Contours of ground water elevation

0 60 120

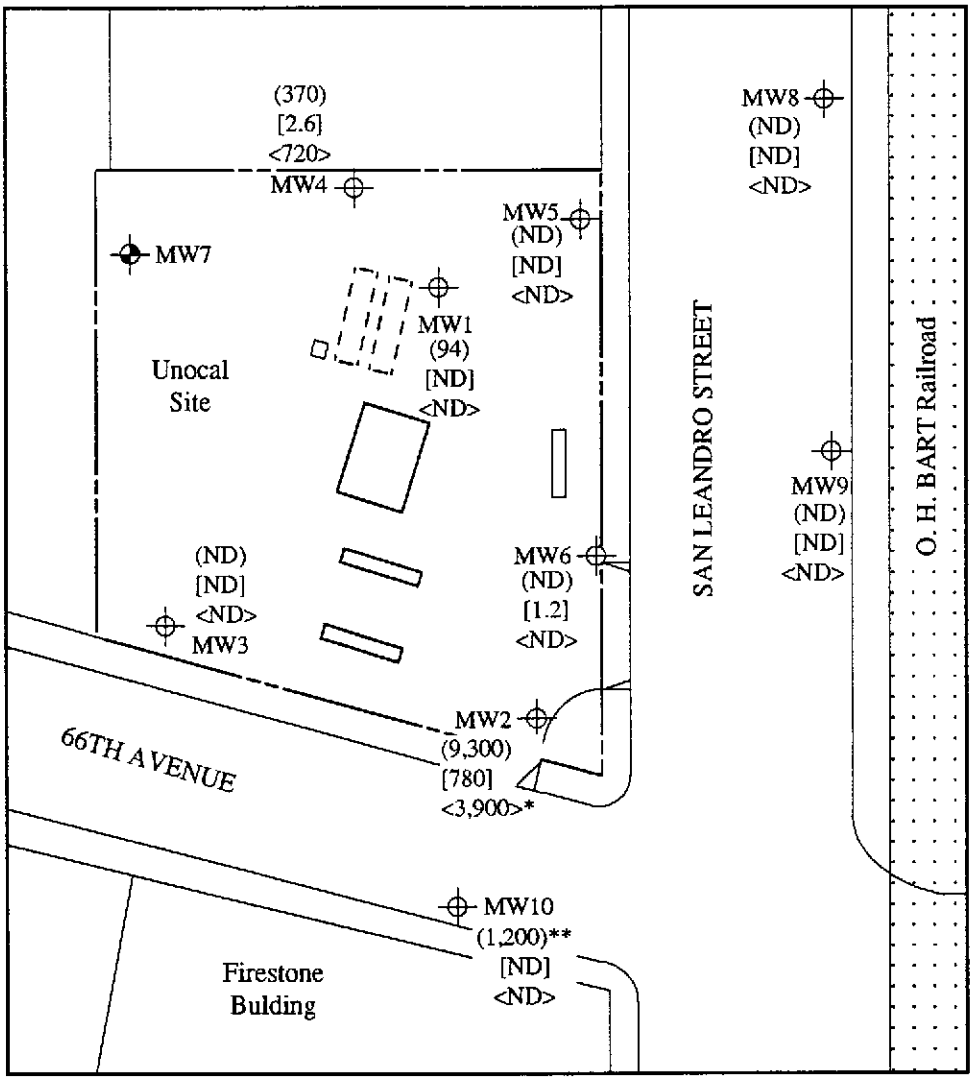
Approx. scale feet

POTENTIOMETRIC SURFACE MAP FOR THE DECEMBER 8, 1992 MONITORING EVENT

KAPREALIAN ENGINEERING
INCORPORATED

UNOCAL SERVICE STATION #3135
845 - 66TH AVENUE
OAKLAND, CA

FIGURE
3



LEGEND

- Monitoring well (existing)
- Monitoring well (proposed)
- ( ) Concentration of TPH as gasoline in ppb
- [ ] Concentration of benzene in ppb
- < > Concentration of TPH as diesel in ppb
- ND= Non-detectable

* The lab reported that the hydrocarbons detected do not appear to be diesel.

** The lab reported that the hydrocarbons detected do not appear to be gasoline.

0 60 120

Approx. scale feet

PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON FEBRUARY 3, 1993

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INCORPORATED

UNOCAL SERVICE STATION #3135
845 - 66TH AVENUE
OAKLAND, CA

FIGURE
4

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled:	Feb 3, 1993
2401 Stanwell Drive, Suite 400	Sample Matrix:	Water	Received:	Feb 3, 1993
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported:	Feb 17, 1993
Attention: Mardo Kaprealian, P.E.	First Sample #:	302-0169		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 302-0169 MW 1*	Sample I.D. 302-0170 MW 2	Sample I.D. 302-0171 MW 3	Sample I.D. 302-0172 MW 4	Sample I.D. 302-0173 MW 5	Sample I.D. 302-0174 MW 6
Purgeable Hydrocarbons	50	94	9,300	N.D.	370	N.D.	N.D.
Benzene	0.5	N.D.	780	N.D.	2.6	N.D.	1.2
Toluene	0.5	N.D.	68	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.5	1.4	830	N.D.	1.2	N.D.	N.D.
Total Xylenes	0.5	1.6	1,200	N.D.	53	N.D.	N.D.
Chromatogram Pattern:		Gasoline and Discrete Peak	Gasoline	--	Gasoline	--	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	40	1.0	1.0	1.0	1.0
Date Analyzed:	2/8/93	2/8/93	2/8/93	2/10/93	2/8/93	2/9/93
Instrument Identification:	HP-2	HP-2	HP-2	HP-5	HP-2	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	102	104	101	103	99	102

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

Please Note: * In the above sample, Purgeable Hydrocarbons are partially due to an unidentified peak in the MTBE range.

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled:	Feb 3, 1993
2401 Stanwell Drive, Suite 400	Sample Matrix:	Water	Received:	Feb 3, 1993
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported:	Feb 17, 1993
Attention: Mardo Kaprealian, P.E.	First Sample #:	302-0175		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 302-0175 MW 8	Sample I.D. 302-0176 MW 9	Sample I.D. 302-0177 MW 10*	Sample I.D. Matrix Blank
Purgeable Hydrocarbons	50	N.D.	N.D.	1,200	
Benzene	0.5	N.D.	N.D.	N.D.	
Toluene	0.5	N.D.	N.D.	N.D.	
Ethyl Benzene	0.5	N.D.	N.D.	N.D.	
Total Xylenes	0.5	N.D.	N.D.	N.D.	
Chromatogram Pattern:		--	--	Discrete Peak	

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	20	1.0
Date Analyzed:	2/8/93	2/8/93	2/9/93	2/8/93
Instrument Identification:	HP-2	HP-2	HP-4	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	97	98	105	95

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

Please Note: * The above sample does not appear to contain gasoline. Purgeable Hydrocarbons are due to an unidentified peak in the MTBE range.

SEQUOIA ANALYTICAL

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(510) 686-9600 • FAX (510) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled:	Feb 2, 1993
2401 Stanwell Drive, Suite 400	Sample Matrix:	Water	Received:	Feb 3, 1993
Concord, CA 94520	Analysis Method:	EPA 3510/3520/8015	Reported:	Feb 17, 1993
Attention: Mardo Kaprealian, P.E.	First Sample #:	302-0169		

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 302-0169 MW 1	Sample I.D. 302-0170 MW 2	Sample I.D. 302-0171 MW 3	Sample I.D. 302-0172 MW 4	Sample I.D. 302-0173 MW 5	Sample I.D. 302-0174 MW 6
Extractable Hydrocarbons	50	N.D.	3900	N.D.	720	N.D.	N.D.
Chromatogram Pattern:		--	Non-Diesel Mixture (<C16)	--	Diesel and Non-Diesel Mixture (<C16)	--	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	10	1.0	1.0	1.0	1.0
Date Extracted:	2/9/93	2/9/93	2/9/93	2/9/93	2/9/93	2/9/93
Date Analyzed:	2/16/93	2/16/93	2/16/93	2/16/93	2/16/93	2/16/93
Instrument Identification:	HP-3A	HP-3A	HP-3A	HP-3A	HP-3A	HP-3A

Extractable Hydrocarbons are quantitated against a fresh diesel standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled:	Feb 2, 1993
2401 Stanwell Drive, Suite 400	Sample Matrix:	Water	Received:	Feb 3, 1993
Concord, CA 94520	Analysis Method:	EPA 3510/3520/8015	Reported:	Feb 17, 1993
Attention: Mardo Kaprealian, P.E.	First Sample #:	302-0175		

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 302-0175 MW 8	Sample I.D. 302-0176 MW 9	Sample I.D. 302-0177 MW 10	Sample I.D. Matrix Blank
Extractable Hydrocarbons	50	N.D.	N.D.	N.D.	
Chromatogram Pattern:		--	--	--	

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0
Date Extracted:	2/9/93	2/9/93	2/9/93	2/9/93
Date Analyzed:	2/16/93	2/16/93	2/16/93	2/16/93
Instrument Identification:	HP-3A	HP-3A	HP-3A	HP-3B

Extractable Hydrocarbons are quantitated against a fresh diesel standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled:	Feb 2, 1993
2401 Stanwell Drive, Suite 400	Matrix Descript:	Water	Received:	Feb 3, 1993
Concord, CA 94520	Analysis Method:	SM 5520 B&F (Gravimetric)	Extracted:	Feb 8, 1993
Attention: Mardo Kaprealian, P.E.	First Sample #:	302-0170	Analyzed:	Feb 9, 1993
			Reported:	Feb 17, 1993

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/L (ppm)
302-0170	MW 2	N.D.
302-0174	MW 6	N.D.

Detection Limits:	**5.0**

Analytes reported as N.D. were not present above the stated limit of detection.

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Kaprealian Engineering, Inc.
2401 Stanwell Drive, Suite 400
Concord, CA 94520
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal, 845 66th Ave., Oakland
QC Sample Group: 3020169-177
Reported: Feb 17, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes	Diesel	Oil and Grease
Method:	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020	EPA8015	SM5520
Analyst:	J.F.	J.F.	J.F.	J.F.	K.Wimer	D. Newcomb
Reporting Units:	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L
Date Analyzed:	Feb 8, 1993	Feb 8, 1993	Feb 8, 1993	Feb 8, 1993	Feb 16, 1993	Feb 8, 1993
QC Sample #:	302-0210	302-0210	302-0210	302-0210	Matrix Blank	Matrix Blank
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	20	20	20	60	250	100
Conc. Matrix Spike:	19	21	22	71	229	105
Matrix Spike % Recovery:	95	105	110	118	91	105
Conc. Matrix Spike Dup.:	19	21	22	70	231	93
Matrix Spike Duplicate % Recovery:	95	105	110	116	93	93
Relative % Difference:	0.0	0.0	0.0	1.4	0.90	12

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.
Laboratory Blank contained the following analytes: None detected.

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% Recovery: $\frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$

Relative % Difference: $\frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}} \times 100$

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Kaprealian Engineering, Inc.
P.O. Box 996
Benicia, CA 94510
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal, 845 66th Ave., Oakland
QC Sample Group: 3020169-177
Reported: Feb 17, 1993

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA 8015	EPA 8015	EPA 8015	EPA 8015	EPA 8015	EPA 8015	EPA 8015
Analyst:	K. Wimer	K. Wimer	K. Wimer	K. Wimer	K. Wimer	K. Wimer	K. Wimer
Reporting Units:	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Feb 16, 1993	Feb 16, 1993	Feb 16, 1993	Feb 16, 1993	Feb 16, 1993	Feb 16, 1993	Feb 16, 1993
Sample #:	302-0169	302-0170	302-0171	302-0172	302-0173	302-0174	302-0175
Surrogate % Recovery:	92	85	90	88	83	92	82

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% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

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Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal, 845 66th Ave., Oakland
QC Sample Group: 3020169-177

Reported: Feb 17, 1993

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA 8015	EPA 8015	EPA 8015
Analyst:	K. Wimer	K. Wimer	K. Wimer
Reporting Units:	µg/L	µg/L	µg/L
Date Analyzed:	Feb 16, 1993	Feb 16, 1993	Feb 16, 1993
Sample #:	302-0176	302-0177	Matrix Blank
Surrogate % Recovery:	91	92	104

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% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

KAPREALIAN ENGINEERING
INCORPORATED

CHAIN OF CUSTODY

SAMPLER: Vartkes
WITNESSING AGENCY:
SITE NAME & ADDRESS: Unocal / Oakland, 845 66th Ave.
TURN AROUND TIME: Regular:

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	ANALYSES REQUESTED: TPHG/BTXE	TPH D	TOG (5520 B&F)	REMARKS
MW 1	2/3/93	10:55 a.m.		X	X		3	Monitoring Well	X	X		3020169AC
MW 2	"			X	X		4	" "	X	X	X	170AD
MW 3	"			X	X		3	" "	X	X		171AC
MW 4	"			X	X		3	" "	X	X		172AC
MW 5	"			X	X		3	" "	X	X		173AC
MW 6	"			X	X		4	" "	X	X	X	174AD
MW 8	"			X	X		3	" "	X	X		175AC
MW 9	"			X	X		3	" "	X	X		176AC
MW 10	"	3:30 p.m.		X	X		3	" "	X	X		177AC

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
W. Vartkes	2/3/93 4:25	Jim Gatti
Jim Gatti	2-4-93 10:30	
	2-4-93 1201	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)

The following MUST BE completed by the laboratory accepting samples for analysis:
1. Have all samples received for analysis been stored in ice? Y
2. Will samples remain refrigerated until analyzed? Y
3. Did any samples received for analysis have head space? N
4. Were samples in appropriate containers and properly packaged? Y

J.C. (Signature) — Analyst (Title) — 2.3.93 (Date)

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